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wardly neither timidly, obscurely, nor by inferior men. Long ago so great an authority as Prof. James declared of the ancient tradition that it was "*one of the most artificial and scholastic untruths which remain to disfigure modern science.*" There would seem, therefore, now to be as little excuse for an intelligent man to believe in this "New Factor" as to continue to believe in the other half of the tradition, *i. e.*, in a personal devil. For a scientist to continue to throw such 'disfiguring untruth' among the already vastly complicated problems of biology and psychology, of heredity, and of social and ethical development, while completely and blindly ignoring the objections which have been heaped, mountain high, against it, cannot henceforth be counted as less than pure Orientalism. To persist in the attempt, with whatever sincerity and enthusiasm of purpose, can only result, as my first words portrayed, in retarding the swing of the pendulum to a more sober consideration by Science of the problems of mind, and in bringing our New Psychology to speedy and undeserved contempt.

It seems hardly worth while to follow Prof. Baldwin into the doctrines of "Imitation" and "Organic Selection" built by him upon his above foundation, when these foundations show themselves to be the veriest myths.

BIRDS OF NEW GUINEA (MISCELLANEOUS).

BY G. S. MEAD.

(Continued from page 290.)

The family of *Certhiidae* (Creepers) have but scant representation in New Guinea, the genus *Climacteris* furnishing the only specimens. One species is perhaps peculiar to the island, *viz.*: *Climacteris placens*. Its plumage above is dusky, tinged reddish on the head with black marks interspersed. Below grayish, spotted brown and black. Sexes alike. Length, six inches. Salvadori says the female has reddish cheeks.

One Nuthatch also belongs to New Guinea—*Sittella* or *Sitta papuensis*—a very small species, less than five inches in

length. Above, the feathers are brown barred with black; below, the arrangement and shading are similar; head and throat white, as are also the upper tail-coverts. Below they are dark, sometimes obscurely spotted. The tail is black and short. Bill black. Legs yellow. The female differs in the coloring of head and under parts, not always essentially.

Of the *Megaluri* scarcely more than two or three species are to be found within the boundaries of New Guinea. One of these is *Megalurus macrurus*, from the southeastern portion of the main-land. The bird is eight inches long; dull brown above, or at times brighter and tawny and streaked with black; under parts coarse white and bluff; and long tail, more than half the entire length. From the same region comes another species much smaller in every way, but of more varied coloring. Considerable white marks the little bird—the under parts, cheeks and quills of the wing feathers taking this hue. Above the ground color is a rusty brown, with black streaks and markings on the shoulders and head. Black prevails on the wing-coverts.

Cisticola exilis, with an endless string of synonyms, which it has obtained by its wide distribution and change of plumage, is a very small thrush, varying in length from 3.5 to 4 inches. In Australian form the head seems to be of a more even reddish or rusty hue. Otherwise the general color is plain gray, picked out with black along the neck and upper back. Sometimes the gray is tinged, as along the wings and tail. Around the face is much white and yellow. The under parts are a discolored gray or buff. The females differ in having the head touched with lines of black or deep brown, and generally in a deeper tone. The plumage changes with the seasons.

Among the Bubbling Thrushes the genus *Sericornis* is represented in New Guinea by two or three species. *S. beccarii*, from the Aru Islands, is colored above dusky, ferruginous on the rump and tail-coverts, and black edging on the wings. Some feathers show white points. Much brown appears in certain lights. White in streaks on the face. Throat white, slightly touched with black. The under parts are a discolored white flanked with brown.

S. arfakiana is very similar in general appearance and colorings. An obscure wing-bar may be traced on the brown wings. The head is darker than the back. The throat is ferruginous, the remaining under surface olivaceous. Length, 4.5 inches.

The beautiful family of the *Nectariniidæ* (sun birds), with their slender forms, their curving bills and metallic plumage, is well represented in New Guinea, rather numerically by individuals than by variety of species. *Cinnyris aspasix*, known also under an appalling number of synonyms, is black, green or blue, according to shading and locality, besides differing considerably in size. The green variety gives out a green gloss from the burnished surface of the back, while beneath the feathers are velvety black. Other reflections are to be observed in different lights. From the throat escape the loveliest blue tints. The larger form (*C. auriceps*), with its lovely golden-capped head, is a dark blue, and is found in several of the adjacent islands. *C. proserpina*, both small and large, is a black-shouldered form, throwing out green, blue and purple, according to the position of the beholder. All of these are of miniature size, and variants of the same general type.

C. frenata, the Australian yellow-breasted sun bird, with brilliant blue tints on its throat, is abundant in southern New Guinea and elsewhere, as well as at Cape York, where Moseley saw it. This species is yellow below, yellowish-green above. The female lacks the blue throat, but has bright gold instead over the entire under parts, from tail to the bill. It breeds in November and December, constructing a little purse of a nest with the covered entrance near the top. Within are laid the tiny eggs, colored dull green, and mottled with dusky spots. These repose on a soft bed of feathers and silky materials. In defense of his home, as indeed at almost all other times, the male is as belligerent as a humming-bird, attacking and putting to rout any vagrants loitering near. The total length of the bird is 4.5 inches, of which the bill comprises nearly an inch, and the short, narrow tail about the same. The latter member is black, with much white in spots on the outer feathers. Bill and feet black. The great beauty of the male lies in the metallic blue throat.

Of the group of Nectarinæine birds called *Arachnathera*, all confined to the Indo-Malayan region, three, if not more species belong to New Guinea exclusively. These are *A. polioptera*, *A. novæ guiniæ* and *A. iliolophus*, all about the same small size, and, owing to this fact, resembling each other to all appearance. The first named, *A. polioptera*, has a steel-blue gray head running into olivaceous, becoming yellowish green along the neck and back. On the wings and tail slate-blue takes the place of green, relieved along the edges by traces of gray or white. The under surface is yellow, retaining, however, the olivaceous tint of the upper parts. On the throat there is the usual changing hues, common to this class of birds. This species lives in the Astrolobe Mountains along with the *A. iliolophus*, although the latter seems more widely spread, being found as well in the southern portions of the great island. A special difference may be pointed out between the two birds, the general color is lighter, that is in the loosened, fluffy plumage of the lower back and sides. In this characteristic *iliolophus* has a marked advantage, the feathers becoming very soft and considerably elongated over the short tail. *Arachnathera novæ guiniæ* is similarly adorned. Its breast, in fact, the under parts generally, is more brightly adorned than the foregoing, being of a brilliant yellow, dashed, however, with olive. In other respects the coloration is nearly the same—olive, olive-brown and brown predominating. There may be in the present case rather more yellow especially about the face.

The Javan Swallow—*Aviundo frontalis*—is only about five inches in total length, measuring from the tip of its tiny bill to either point of the deeply-forked tail. The general color above is dusky, scarcely the usual steely-blue of most swallows, but with a darker shade on the shoulder and crown. The under parts are much lighter, at least in the case of the New Guinea specimens, which are invariably pale; in fact, the abdomen is almost white. On the upper breast and throat a fine rufous tint is very prominent. The tail above is a uniform black; below there is a broad band of white following the triangular form of the fork, but melting at the apex into the wavy white of the coverts. The little bird is by no means con-

fined to Java, but is very widely distributed over the Papua, migrating to far distant tropic lands besides.

Hirundo nigricans or *Petrochelidon nigricans* presents few features of coloration to distinguish it from the various forms of swallows of different denominations so well known in all parts of the world. The present bird wanders widely over the Australian continent and Papua. It is small of size, not much over five inches in total length, although many specimens exceed this measurement, the individual differences being unusually great. Dun rumped, as Latham called this species, fairly characterizes it; but this appearance varies according to age, locality and season. In general color above, dark gleaming blue, faintly marked white lines prevails. Below, the body is buff or whitish, with a dark-hued breast. Wings above are dusky; below a ruddy tinge, tail feathers similar.

Many of the family *Dicæidæ* find a home in New Guinea or its islands. They are all small, usually prettily colored birds, allied at least in appearance to the sun birds, although hardly as elegant of form or richly plumaged as those delicate denizens of the tropics.

Dicæum rubrocoronatum abound in southern New Guinea, especially near Port Moresby. It is a showy little creature, a trifle over three inches in length only. Above the color is blue-violet, becoming less distinct on the neck, and merging into rusty on the wings. The tail continues this deep blue of the body; but over the rump and crown of the head a bright scarlet is thrown. This reappears in a broad segment on the upper breast. The female lacks this conspicuous ornament altogether, while the scarlet elsewhere becomes merely dull red. In other respects she is colored like her mate, having the under parts pale yellow, olive and white. She is, however, unmarked by a pinkish tinge on the under tail-coverts, which adorns the male bird. In both the middle abdomen and throat are a buffish white. Bill and feet dark.

Scarcely to be distinguished from the preceding is *D. pulchrius*, who differs chiefly in the coloration of the under tail-coverts, which, instead of pink, are a yellowish-brown. In lieu of this deficiency *pulchrius* has been granted a slightly

larger expanse of scarlet on the head and neck. The habitat is the southeast.

Another species from southeast New Guinea, along the Fly River, differs from the first named chiefly in having a glossy black upper surface instead of blue. It is known as *D. rubrigulare*.

Smaller and more plainly colored is *D. pectorale*, whose leading tints are olive-green above, yellow on head and rump, no scarlet whatever excepting on the upper breast, the remaining under parts and tail-coverts light yellow, exclusive of the whitish under wing-coverts.

From the Bay of Gielvink comes *D. gielvinkianum* or *mafoorensse*, of an olive color above glossed with steel-blue. Here again a shade of red appears on the crown, rump, upper tail-coverts and breast. The under surface is a yellowish-white bordered along the sides with olivaceous. A more brightly tinted variety is named *D. jobiense*.

The genus *Oreocharis* of the Dicæidæ, represented by one species, is peculiar to New Guinea; this is *Oreocharis arfaki*, collected by Mr. Goldie in the Astralobe Mountains. This is a larger bird by two inches than those of an allied kind just considered. The color above is dissimilar, viz.: an olivaceous, somewhat glossed. The dusky wings, however, are touched with green and yellow on some of the feathers. So, too, the tail above. Crown of the head and sides glossy black, melting into bottle-green on the neck. About the eye are dashes of the brightest corn-yellow. This is the color also of all the under parts, excepting the black throat. The under wings are paler, with black touches. A reddish stripe may be seen in the gold ground of the under parts.

Urocharis longicauda is likewise the sole species of the genus *Urocharis*, and occupies the same region of the Arfak Mountains. Above the general color is a shining black, the only exceptions being the rump, which is gray, and the tail, where on the outer feathers a long spot is visible. The side face is olivaceous; this is the color on the under body mingled with pale yellow. The female is larger by more than half an inch, and is a smooth olive-green. Length, about five inches. The tail nearly half this figure.

The genus *Melanocharis* comprises four species, all from New Guinea and its islands. These are not very dissimilar in size or coloration. The best known, well named *M. nigra*, is a glossy black above of a bluish cast. Beneath the principal tint is olivaceous, passing into pale yellow on the abdomen. The under wing-coverts are white. Total length, nearly five inches.

Another genus of the same family, consisting of but a single species, is *Pristorhamphus veroteri*. A larger bird this by an inch, with rich, velvety black plumage above, emanating pale green. Underneath a bluish tint. Besides, some spots of white on the tail, apparent when the bird is flying, but concealed at other times; there are white plumes, very soft and delicate, waving on either flank. The female is equipped with these same adornments, but is of dimmer coloring, mainly olivaceous. Habitat, the Arfak Mountains.

Less by more than an inch is *Rhamphocharis crassirostris*, the sole member of its genus. An olive-green bird above with dusky brown wing- and tail-coverts, and blackish tail. Below the body is a pearl-gray with a yellow wash. The female is of larger size, olive-brown above, but differing from the male in being rather more varied in neutral colors, yellow and white spots or dots appearing on the dull surface of wings, tail and back. The under parts are of a soiled white, specked with yellow and brown. The bill is not noticeably larger than that of other species.

THE BACTERIAL DISEASES OF PLANTS: A CRITICAL REVIEW OF THE PRESENT STATE OF OUR KNOWLEDGE.

BY ERWIN F. SMITH.

II.

I. THE BEET (*BETA VULGARIS* L.).

1. THE BACTERIOSIS OF FODDER BEETS (1891).

(I) THE DISEASE.

(1) *Author, Title of Paper, Place of Publication, etc.*—This disease was first described by Dr. Ernst Kramer, Privat Docent